

1 REMARKS

2 Status of the Claims

3 Claims 1-21 are pending in the present application. Claims 1, 8, 13, and 18-21 have been  
4 amended to more clearly define the invention.

5 Rejection of Claims 18-20 under 35 U.S.C. § 101

6 The Examiner has rejected Claims 18-20 under 35 U.S.C. § 101 as being directed to non-  
7 statutory subject matter. As suggested by the Examiner, applicants have amended the claims to recite  
8 the methods as being implemented by an apparatus. Accordingly, the rejection based on  
9 35 U.S.C. § 101 has been addressed, and should be withdrawn.

10 Rejection of Claims 8, 13, and 18-21 under 35 U.S.C. § 103

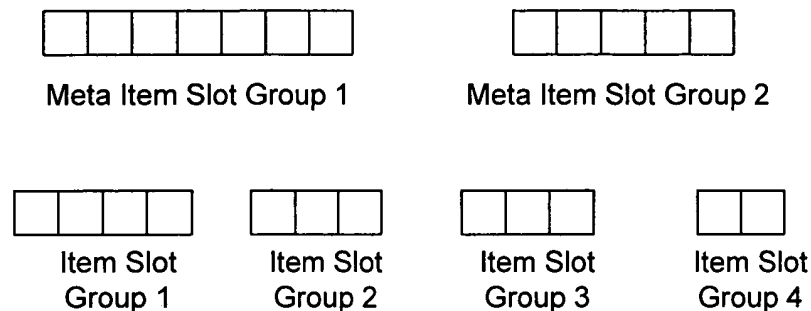
11 The Examiner has rejected Claims 8, 13, and 18-21 under 35 U.S.C. § 103(a) as being  
12 unpatentable over Brown et al. (U.S. Patent No. 6,026,368), in view of Herz (U.S. Patent  
13 No. 6,029,195). The Examiner indicates that Brown discloses an invention equivalent to that defined  
14 by applicants' claims, except for filling slots based on hierarchical clustering in which an item in a  
15 lower cluster is also a member of each cluster above, and each cluster below is defined more  
16 specifically, which is disclosed by Herz. Applicants respectfully disagree for the following reasons.

17 It appears that while Herz does disclose hierarchical clustering, the method defined by the  
18 present invention fills open item slots in a distinguishable manner that is not obvious in view of the  
19 cited art. The core functionality of the invention disclosed by Herz appears to be shown in the  
20 flowchart of FIGURE 10 in the Herz patent. Based on a user's profile, a list of information (i.e.,  
21 news articles) is provided to the user. The list is sorted according to the degree of similarity of the  
22 article to interests expressed in the user's profile. Herz also discloses hierarchical clustering, which  
23 as the Examiner has noted, is described in column 25, lines 10-67. This section of Herz describes  
24 hierarchical clusters in the context of FIGURE 7 of the reference. The Examiner correctly observes  
25 that in such a tree of hierarchical clusters, each item in a lower cluster is a member of the clusters  
26 above, and as one moves downward in the hierarchy, the items in the clusters are identified more and  
27 more specifically.

28 A significant distinction between the present invention defined in Claims 8, 13, and 18-21,  
29 and the hierarchical clustering described by Herz, is that only some of the items in the present  
30 invention are organized such that each slot in a lower cluster is filled with an item that is more

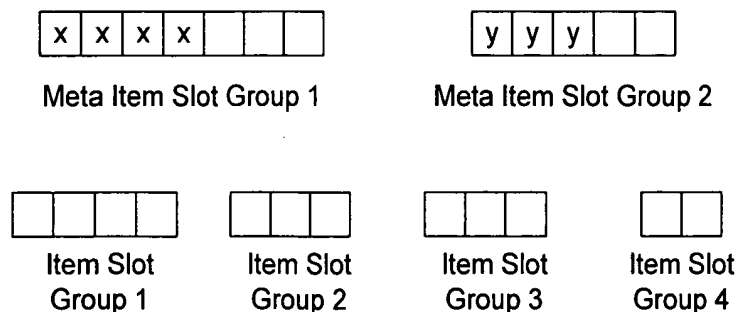
specifically defined than slots in higher clusters. In fact, according to the invention defined by applicants' claims, only items of the second type fill empty slots based on such hierarchical clustering, while items of the first type are distributed based on matching characteristic of only an upper cluster (meta slot item groups) and not lower clusters (slot item groups).

To understand this distinction, it may be helpful to review the following graphics, which are entirely consistent with the Figures and text of the pending application. Each step relating to the following graphics is recited in the claims of the pending application. In Graphic 1, meta item groups and slot item groups are constructed.



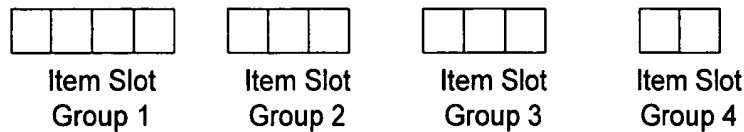
Graphic 1: Construct meta item slot groups and item slot groups

After the meta item slot groups and the slot item groups are constructed, the meta item slot groups are filled with items of the first type, as indicated by "x" and by "y" in Graphic 2. Note that meta item slot groups are broader than item slot groups, as each meta item slot group can encompass one or more item slot groups. For the purposes of this discussion, it will be assumed that Item Slot Group 1 and Item Slot Group 2 are encompassed by Meta Item Slot Group 1, while Item Slot Group 3 and Item Slot Group 4 are encompassed by Meta Item Slot Group 2. Items "x" of the first type have characteristics matching Meta Item Slot Group 1, while items "y" of the first type have characteristics matching Meta Item Slot Group 2.



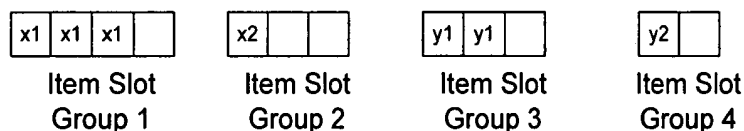
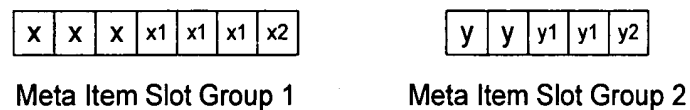
Graphic 2: Fill meta item slot groups with items of the first type

Another step is to fill the remaining slots in the meta item slot groups with items of the second type having corresponding characteristics, as indicated in Graphic 3. Items of the second type "x1" have characteristics matching Meta Item Slot Group 1 and Item Slot Group 1, while items of the second type "x2" have characteristics matching Meta Item Slot Group 1 and Item Slot Group 2. Similarly, items of the second type "y1" have characteristics matching Meta Item Slot Group 2 and Item Slot Group 3, and items of the second type "y2" have characteristics matching Meta Item Slot Group 2 and Item Slot Group 4



Graphic 3: Fill meta item slot groups with items of the second type

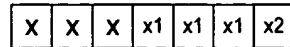
Next, the item slot groups are filled using the items of the second type previously used to fill the meta item slot groups, as indicated in Graphic 4.



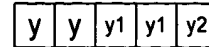
Graphic 4: Fill item slot groups with items of the second type

Finally, the empty slots in the item slot groups are filled with items of the first type currently filling the slots in the meta item slot groups as indicated in Graphic 5.

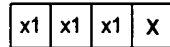
It is important to note that each first item "x" and each first item "y" in any of Item Slot Groups 1-4 is not defined as specifically as the items of the second type in of Item Slot Groups 1-4. For example, item "x1" can only be a member of Item Slot Groups 1. Each item "x" is only defined in terms of Meta Item Slot Group 1, which encompasses Item Slot Groups 1 and 2. Thus, any item "x" can be placed in any open slot in either of Item Slot Groups 1 and 2.



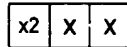
Meta Item Slot Group 1



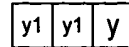
Meta Item Slot Group 2



Item Slot  
Group 1



Item Slot  
Group 2



Item Slot  
Group 3



Item Slot  
Group 4

Graphic 5: Fill item slot groups with items of the first type

According to Herz, each lower cluster (or sub cluster) is more narrowly defined, and *each item in the same cluster* is defined with the specificity for that cluster. Further, as indicated in FIGURE 7 of Herz patent, each item ultimately is separated into its own lower cluster based on characteristics unique to that item. According to the claimed method of the present invention, items of the first type are separated into different meta groups based on their meta characteristics, and whether an item of the first type is placed into a particular item slot group is not based on group characteristic of the item slot group, but instead, is based on the meta characteristic of that item slot group. To use terms consistent with applicants' claims, Herz teaches a method (as indicated in FIGURE 7) in which membership in an item slot group (a lower cluster) is restricted to items sharing a common meta characteristic (members of a common upper cluster) *and* items having the same group characteristic (the characteristic associated with that cluster or sub cluster).

Claims 8, 13, 19, 20, and 21 have been amended to more clearly recite that the items of the first type are required to match only the meta characteristic of the item slot, and not the group characteristic of the item slot. Claim 18 already recites that items of the first type have only meta characteristics, while items of the second type have meta and group characteristics.

Even if Brown is modified in light of Herz, as suggested by the Examiner, the result is not equivalent to the claimed invention because the resulting combination would not include items (i.e. items of the first type) in an item slot if that item did not have both the same meta characteristic and group characteristic of that item slot. There does not appear to be any suggestion in the cited art that would lead to the modifications required to achieve a method equivalent applicants' claimed invention. There is no evidence that such a modification would solve any problem recognized in the art.

Furthermore, with respect to the required motivation to combine Brown and Herz, the

1 Examiner asserts that one of ordinary skill would have been motivated to incorporate Herz's  
2 hierarchical clustering into Brown's advertising matching method to enable Brown's folders to be  
3 better managed so as to achieve better matching of items of different priorities. It is not clear that a  
4 combination of Brown and Herz would result in a superior ad matching method, or that one of  
5 ordinary skill in the art would have recognized that a specific problem known in the art could be  
6 solved by making such a combination. Significantly, both Brown's disclosure and Herz's disclosure  
7 are extremely complex and detailed. Yet, neither reference provides any guidance as to how such  
8 complicated systems and methods could be combined. Thus, there does not appear to be a reasonable  
9 expectation that such a combination would be successful or even attempted by one of ordinary skill.

10 For the reasons discussed above, Claims 8, 13, and 18-21 are distinguishable over the  
11 combination of Brown and Herz suggested by the Examiner. Accordingly, the rejection of Claims 8,  
12 13, and 18-21 under 35 U.S.C. § 103 as being unpatentable over Brown in view of Herz should be  
13 withdrawn.

14 Particularly with respect to Claims 8, 13, and 20, each claim recites the step of determining a  
15 number of item slots available in an inventory that are empty, such that groups of empty item slots  
16 are organized into item slot groups. Previously, the Examiner has explained that Brown's priority  
17 queues inherently define a plurality of item slots, because each queue is programmatically generated  
18 based on a predetermined default queue size. In such a scenario, the number of slots is based on the  
19 default queue size, not on a number of open slots in an inventory. Therefore, the step of creating  
20 Brown's queues is not equivalent to the recited step of organizing empty inventory slots into item slot  
21 groups, and there is no suggestion in the cited art that it is either possible or desirable to generate  
22 queues not based on predefined sizes, but instead, based on an inventory of empty slots. Because  
23 Brown's priority queues are not equivalent to the recited item slot groups, the combination of  
24 references cited by the Examiner fails to provide an equivalent method to applicants' claimed  
25 invention. For this additional reason, Claims 8, 13, and 20 are further distinguishable over the  
26 combination of Brown and Herz suggested by the Examiner. Accordingly, the rejection of Claims 8,  
27 13, and 20 under 35 U.S.C. § 103 as being unpatentable over Brown in view of Herz should be  
28 withdrawn.  
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1 Rejection of Claims 1-7, 9-12, and 14-17 under 35 U.S.C. § 103

2 The Examiner has rejected Claims 1-7, 9-12, and 14-17 under 35 U.S.C. § 103(a) as being  
3 unpatentable over Brown (U.S. Patent No. 6,026,368), in view of Herz (U.S. Patent No. 6,029,195),  
4 and further in view of Conley, Jr. et al. (U.S. Patent No. 6,434,745). The Examiner indicates that  
5 Brown discloses an invention equivalent to that defined by applicants' claims, except for filling slots  
6 based on hierarchical clustering, and displaying a report about the slots as a histogram. Applicants  
7 respectfully disagree for the following reasons.

8 The analysis for Claims 1-7 is somewhat different than for Claims 9-12 and Claims 14-17,  
9 because Herz's hierarchical clusters are not relevant to Claims 1-7. In the invention defined by  
10 Claim 1, there are no lower clusters, just a plurality of item slots arranged in item slot groups. An  
11 item either shares a characteristic with a specific item slot group or it does not. Higher-level clusters  
12 or meta item slot groups are not recited in Claim 1. With respect to Claims 9-12 and 14-17, items of  
13 the first type, which express meta characteristics but not group characteristics, are recited. For the  
14 reasons already discussed in detail above, the combination of Herz and Brown does not achieve the  
15 invention defined by Claims 8 and 13. Conley does not disclose any element relevant to Claims 8  
16 and 13, and therefore, the combination of Brown, Herz, and Conley similarly does not achieve an  
17 invention equivalent to that recited in Claims 8 and 13. Claims 9-12 depend on Claim 8, and  
18 Claims 14-17 depend on Claim 13, and each dependent claim is patentable for at least the same  
19 reasons as the independent claim from which it ultimately depends. Accordingly, the rejection of  
20 Claims 9-12 and 14-17 under 35 U.S.C. § 103 as unpatentable over Brown in view of Herz, and  
21 further in view of Conley, should be withdrawn.

22 With respect to Claims 1, 9, and 14, each claim recites displaying data about the slots as a  
23 histogram. The Examiner has indicated that Conley suggests the use of histograms for reports on  
24 advertising over computer networks. However, applicants' claims specifically recite that each bar in  
25 such histograms simultaneously conveys the total number of empty slots, and an indication of how  
26 many of those slots are filled and unfilled. As disclosed in the Figures and text of the pending  
27 application, each bar in applicants' claimed histogram has a height corresponding to the total number  
28 of item slots in a particular item slot group, and shading is used to indicate how many of the item  
29 slots in an item slot group are filled.

30 Conley simply mentions a histogram and does not teach or suggest that each bar must

1 simultaneously indicate the total number of item slots and the number of item slots filled and empty.  
2 Conventional histograms are simple bars, the height of the bar representing a numerical quantity  
3 associated with a class or variable corresponding to the bar. Given Conley's disclosure about this  
4 more conventional use of histograms, at best, one of ordinary skill in this art would have developed a  
5 histogram whose bars indicated the number of item slots that have been filled – but nothing more. It  
6 is not reasonable to conclude that it would have been obvious to use individual bars to simultaneously  
7 indicate the total number of item slots and the number of item slots filled and unfilled. The cited art  
8 provides no teaching as to how that function can be achieved.

9       Significantly, the Examiner has consistently asserted that Brown's priority queues are  
10 equivalent to applicants' item slot groups. In past responses, applicants have argued that such queues  
11 cannot be equivalent because the queues have no empty slots. The Examiner then clearly indicated  
12 that because of the programmatic techniques employed to generate a queue, all queues have a  
13 predetermined default size, and thus, asserted that each queue has an identical number of item slots.  
14 If this is true and Brown were modified in view of Conley to include histograms, then a histogram  
15 indicating the total number of slots available in each priority queue would result in a histogram of  
16 identical height bars, because each priority queue programmatically would have the same default  
17 size. A histogram of identically sized bars provides little useful information. Indeed, since each  
18 priority queue is the same size, there is no logical reason for a histogram to include the number of  
19 slots in a priority queue. A modification that is illogical is hardly obvious. Because each of Brown's  
20 queues has an identical number of slots, a more useful histogram would include bars whose heights  
21 reflect the number of slots in each priority queue that are filled. Such a histogram, while arguably a  
22 reasonable result based on a combination of Brown and Conley, is not equivalent to applicants'  
23 histogram as recited in these claims, in which each bar reflects the number of item slots, as well as an  
24 indication of how many of those slots are filled and unfilled. Claims 2-7 depend on Claim 1, and  
25 each dependent claim is patentable for at least the same reasons as the independent claim from which  
26 it ultimately depends. Accordingly, the rejection of Claims 1-7, 9, and 14 under 35 U.S.C. § 103 as  
27 being unpatentable over Brown in view of Herz, and further in view of Conley, should be withdrawn.

28       Finally, Claim 1 specifically recites the step of determining a number of item slots available  
29 in an inventory, and then constructing item slot groups based on the number of empty slots in the  
30 inventory. The Examiner has argued that Brown's priority queues are equivalent to applicants'

1 recited item slot groups. However, the Examiner has also noted that queues are programmatical  
2 constructs having a predetermined default size. Thus, a programmatic queue is not constructed based  
3 on a number of item slots available in an inventory, and there does not appear to be any reasonable  
4 way to construct priority queues based on such an inventory, as opposed to a predetermined default  
5 queue size. In any case, the cited art is completely silent about using any criteria other than default  
6 sizes for constructing queues, and Brown's queues are not equivalent to applicants' recited item slot  
7 groups, which are produced by organizing empty inventory slots. Claims 1, 8, and 13 each recite  
8 determining the number of empty slots in an inventory before constructing item slot groups based on  
9 the number of open slots in an inventory, and for this additional reason, these independent claims,  
10 and each claim depending on these independent claims, are distinguishable over the cited art. The  
11 rejection of Claims 1-7, 9-12, and 14-17 under 35 U.S.C. § 103 as being unpatentable over Brown in  
12 view of Herz, and further in view of Conley, should therefore be withdrawn.

13 In view of the amendments and Remarks set forth above, it will be apparent that the claims in  
14 this case define a novel and non-obvious invention, and that the application is in condition for  
15 allowance and should be passed to issue without further delay. Should any further questions remain,  
16 the Examiner is invited to telephone applicant's attorney at the number listed below.

17  
18 Respectfully submitted,

19   
20

21 Ronald M. Anderson  
22 Registration No. 28,829

23 I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed  
24 envelope as first class mail with postage thereon fully prepaid addressed to: Commissioner for Patents, P.O.  
25 Box 1450, Alexandria, VA 22313-1450, on November 4, 2003.

26 Date: November 4, 2003

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